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DOUBLE OVARIOTOMY

PERFORMED FOR THE REMOVAL OF

SOLID OVARIAN TUMOURS.

TRANSFUSION OF MILK FOUR DAYS AFTER OPERATION.

BY

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DOUBLE OVARIOTOMY.

ON the ninth of October, 1875, Mrs. S., of Oswego, N. Y., temporarily residing in Brooklyn, æt. 30 years, the mother of two children, called upon me by the advice of Dr. Chauncey L. Mitchell, of the latter city, and gave me the following history of her case.

Seventeen months ago, up to which time she had been in good health, she had been safely delivered of a child. Since that time she had been slowly but steadily failing in strength, becoming more and more feeble, and within the last six months rapidly emaciating. No cause could be found for this constitutional depreciation until last May, when Dr. C. C. P. Clark, of Oswego, upon making a careful vaginal examination, discovered a solid tumour connected with one ovary, not larger than an egg. Since that time this tumour had gone on steadily increasing in size until at the time of her examination by me it was as large as the uterus at the sixth and a half or seventh month of pregnancy.

Besides the marked constitutional depreciation and emaciation which had developed during the past six months, no other decided symptoms had shown themselves. The menstrual discharge had been absent for three months, and some neuralgic pains had existed about the inguinal regions and lower part of the abdomen. When asked what her chief suffering was, the patient would reply that she suffered no absolute pain, but that she felt generally wretched and exceedingly feeble.

Physical examination yielded the following results: the uterus held its normal position as to elevation in the pelvis, but was pushed forwards towards the symphysis pubis by a round, hard immovable tumour, which occupied Douglas's pouch and filled the upper part of the sacral concavity. The uterus measured, from os externum to fundus, three inches, and upon rotation of the uterine sound, it could be distinctly, though not freely, moved without impressing the movement upon the tumour which lay behind it. Upon conjoined manipulation the large hard tumour mentioned as occupying the abdominal cavity could be felt. It extended above the umbilicus for about three inches, and filled the false pelvis from one iliac crest to the other. Its surface was flat and smooth, the tips of the fingers could be inserted under its edge, and the tumour could be easily moved in every direction, though only to a limited degree.

I was somewhat puzzled at finding that movements impressed upon the abdominal tumour did not proportionately influence that portion felt behind the uterus. This fact was fully explained upon opening the abdominal cavity at a later period. The uterus moved with the abdominal tumour, but not nearly as freely as it would have done had this been attached to it by sessile attachment or even by a short pedicle.

Owing to the enfeebled state of the patient, the physical examination was not made as thoroughly as it might have been, and was concluded as rapidly as was consistent with clearness of diagnosis.

Upon this visit Mrs. S. showed me a letter from Dr. W. L. Atlee, who had examined the case on the 1st of October, 1875, to her physician, Dr.



Clark, in which he expressed himself in the following words: "I examined your excellent patient, Mrs. S., day before yesterday, at Auburn, and find a very unique and interesting specimen of disease. I have never felt a tumour that more closely resembled a cirrhosis of the liver, and from that circumstance, and from her pallid and rather cachectic appearance, I am somewhat apprehensive of a malignant basis." He also stated his opinion that a resort to operation would be a hazardous one. It was under the depressing influences of so grave an opinion from so high an authority that she sought my advice.

The whole history of the case, as well as the physical signs, so closely resembled those of two cases of solid ovarian adenoma with which I had met, that I ventured to hope that this tumour might partake of that nature, and not be true cancer. As the sequel will show, the microscopists to whom specimens were subsequently submitted differ somewhat as to their nature. As all, however, agree in the existence of a decided adenomatous element in them, it may not be without interest for the general reader to give a sketch of the very meagre literature of this form of tumour as it occurs in the ovary.

In the first volume of Mr. Spencer Wells's work upon *Diseases of the Ovaries*, on page 122, will be found the following description of a tumour presented at the Pathological Society:—

"Mr. Spencer Wells exhibited a specimen of 'adenoma of the ovary,' which he said he thought the most appropriate designation which occurred to him, although it might be called fibro-epithelioma, or alveolar adenoid tumour. It is identical in structure with the adenoid growths first described in connection with the mammary gland, and it was very interesting that it should now be found in connection with the ovary. He had not seen a similar growth in the ovary before, nor had he found it described by any author. A drawing of Dr. Hughes Bennett's of the structure of chronic mammary tumour might have been taken from one of the sections shown to the society. The tumour was removed on the third of last September from a single lady about fifty years of age, who recovered perfectly after the operation. It consisted in great part of an ordinary multilocular cyst; but one large cyst was filled with semi-solid matter, which at first sight looked exactly like soft cancer, but after hardening in spirit and examining thin sections the true character was made out, and it was seen that the surface of the growth was fringed with papilliform villi, its substance showing in vertical sections a delicate fibrous stroma forming round or oval alveoli. These alveoli are lined with densely grouped epithelial cells, forming a continuous zone, which incloses an area loosely packed with cellular elements of similar form. On the margins of most sections the contents of the alveoli are frequently seen to protrude, like papillæ, through ruptured portions of the fibrous septa, or the lining zone of the alveolus has become liberated and divided so as to assume the appearance of a long cylindrical band or column of the epithelial cells. The tumour, therefore, belongs distinctly to the class of fibro-epithelial growths, and from the folliculoid character of its alveoli would, Mr. Wells thought, be most appropriately classed as adenoma."

This was in 1862, and Mr. Wells claimed priority in the name. The tumour presented was not a solid one, for the patient was twice tapped, and on each occasion fourteen pints of fluid were removed.

Since that period it has become a recognized fact among pathologists that a certain degree of adenoid development occurs in every true ovarian cystoma. Mr. Wells himself considers, in his recent work upon *Diseases*

of the Ovaries, under the head of adenoid tumours, all simple, multiple, and proliferous cysts; and Delafield¹ declares that "in the ovaries most of the compound cysts are adenomata, with dilatation of the follicles." It is only in exceptional cases that solid adenomatous tumours, with few and insignificant follicular dilatations, are met with. I have met with two instances of this variety.

In 1864 a tumour of this character was removed by Mr. Baker Brown, presented to the Obstetrical Society of London,² and referred for special examination to Drs. Greenhalgh and Braxton Hicks, who made the following report:—

"*External Aspect.*—The tumour is firm, very lobulated, and somewhat kidney-shaped, the right lobe constituting about one-third, the left two-thirds of the whole mass. In its long axis it measures nearly eight inches. The transverse circumference of the right lobe is about ten inches, that of the left about the same. The investing membrane is everywhere closely adherent, from which it is separable with difficulty."

In the right lobe of the tumour were numerous cavities, the largest as large as a walnut; in the left a larger one. "On the division of the tumour in its long axis the right lobe cuts like what has been called sarcomatous tissue; the left, being much softer, recedes before the knife, whilst the other was more or less cartilaginous."

"The great mass of the tumour is made up of solid pinkish tissue, the left lobe possessing delicate bands of lighter tissue radiating from near its centre."

After giving the microscopic features of the tumour the committee concludes by saying: "We consider, from the general microscopical examinations of the above tumour, that it was a specimen of that form of disease recently designated adenoma of the ovary."

Although, as I have just shown, in 1862 and '64 this variety of tumour was formally introduced into the list of ovarian tumours by high authority, it has not been admitted to a recognized position at the hands of systematic writers. Thus Peaslee,³ writing in 1872, says: "It should have been stated that adenoma of the ovary has more recently been asserted. But since this term is rightly applied only to an hypertrophic development of the epithelial element of a gland, the subject needs further investigation." He says no more than this upon adenoma. In Atlee's⁴ work, published in the same year, no allusion to this form of tumour appears. Barnes is equally silent upon the subject, and in the most recent of the works upon gynaecology, by Prof. Schröder,⁵ of Erlangen, it passes likewise without mention. The latter author alludes to papilloma, sarcoma, fibroids, and carcinoma of the ovary, but nowhere does adenoma receive even a mention. When the large experience of Atlee and Peaslee is borne in mind, with the additional fact that Barnes writes in the very city in which Wells first drew attention to this form of tumour, it becomes very evident that ovarian adenoma, as a tumour in the main of solid character, has not been admitted to a recognized position.

¹ Post-mortem Examinations and Morbid Anatomy.

² Transactions, vol. vi. p. 181.

³ Ovarian Tumours.

⁴ Ovarian Tumours.

⁵ Diseases of Female Sexual Organs.—Ziemssen's Cyclop.

From this digression I now return to the case which forms the subject of this paper.

As the patient was already greatly enfeebled, and was steadily becoming more and more exhausted, I readily assented to her own desire and that of her friends, and agreed to perform ovariectomy without much delay.

On the 14th of October, at 3½ o'clock P. M., I proceeded to operate in the presence of Dr. C. C. P. Clark, of Oswego, Drs. Mitchell and Skene, of Brooklyn, and Drs. Hunter, Walker, and Jones, of New York. The patient having been etherized by Dr. Skene, and placed upon her back upon a table, I made an incision through the peritoneum extending from a point two inches above the umbilicus to the symphysis pubis. Through this the tumour, which was unattached, was removed. The pedicle, consisting of the right ovarian ligament, Fallopian tube, and extension of the round ligament, was secured in a clamp, but upon subsequent examination it was found to be so tense that I ligated and returned it to the pelvis.

Upon examining the uterus it was found to be perfectly normal, but the left ovary was as large as a bullock's kidney and lay behind the uterus, distending and occupying Douglas's pouch. This was removed like the right, and the abdominal incision rapidly closed.

The whole operation occupied thirty-six minutes. At its conclusion the patient was removed to a warm bed, hot bricks put to her feet, the room darkened, and perfect quiet enjoined.

The patient was left under the care of Dr. S. B. Jones, who, on account of her very enfeebled condition, remained with her constantly for the next five days, and to his watchfulness and care I cannot but feel that the subsequent recovery of the patient was in great part due.

She was kept entirely upon the milk diet, taking this in very small amounts, and at intervals of three or four hours, and was quieted by small doses of morphia.

During the next thirty-six hours all went well, the temperature did not rise above 102°, and the only anxiety which was felt in reference to her during this period was created by the fact that she could take very little food without vomiting, and that her pulse, the rate of which was 130 to the minute, was exceedingly small, feeble, and flickering. On Friday I saw her in consultation with Drs. Mitchell and Jones. On Saturday morning, just thirty-six hours after the operation, I received a telegram stating that a rather profuse uterine hemorrhage had come on, and that the patient had lost ground decidedly in consequence. At ten that morning I saw her, and the condition of affairs looked decidedly unpromising. The pulse was so rapid and weak that at times it could scarcely be felt, and the patient began to vomit everything that was put into the stomach, even small pellets of ice. The foot of the bedstead was elevated twelve inches, cold was applied to the vulva, and the patient kept perfectly quiet. From this time nourishment was given by the rectum alone.

On the evening of that day I was forced to go to Rhinebeck, from whence I could not return before the evening of the following day. At eleven o'clock that night I received a telegram from Dr. Jones, stating that the uterine hemorrhage had recurred so violently that with the assent of Dr. Mitchell he had used a vaginal tampon, and that the patient was sinking so rapidly that she would die before morning. Reaching home late on Sunday night I found that death had not occurred, and early on Monday morning I went to Brooklyn to see her.

On this visit I found everything looking very badly. Both stomach

and rectum rejected all nourishment; the temperature was only 102° , but the pulse was small, flickering, and beating at 140 to the minute. It was agreed that very small amounts of fluid food should be cautiously tried by stomach and rectum, and, as the patient appeared to be dying from sheer exhaustion, the result of previous enfeeblement by the disease, and more recent starvation and loss of blood, that, in case Drs. Mitchell and Jones should towards night feel convinced that death would occur, I should be summoned to perform transfusion.

At six that evening (Monday, four days after operation), I received a telegram urging my immediate attendance on Mrs. S., who appeared to be rapidly sinking. When I saw her I found her bathed in cold sweat, with a temperature of 101° , a pulse of 150, and a facies expressive of approaching dissolution. It was decided at once to try the effect of transfusion.

Three experiments with the transfusion of blood rendered me very averse to the employment of this fluid, and with the consent of my colleagues I decided to employ instead perfectly pure, fresh milk. This idea suggested itself to my mind from the recollection of some cases in which it was employed twenty years ago by Dr. Edward M. Hodder, of Toronto, Canada. In 1850 Dr. Hodder injected this fluid into the veins of three patients moribund from Asiatic cholera, which was at that time epidemic in Canada. In a communication from him he informs me that he injected as much as fourteen ounces at one sitting; that no alarming symptoms occurred; that good results manifested themselves from the first; and that two recoveries had taken place in patients who appeared moribund when the operation was resorted to. He was encouraged to try the method from the fact that Donné had injected milk into the veins of dogs and rabbits without injury to them. Since the cases reported by Dr. Hodder, I know of no one who has repeated this experiment in the human being until a year ago, when Dr. Joseph W. Howe, of this city, injected six ounces of warm goat's milk into the cephalic vein of a patient suffering from tubercular disease, and who appeared to be dying from starvation in consequence of an inability to retain nutritious material by either stomach or rectum. Dr. Howe declares that—

“When nearly two ounces had been thrown into the circulation, he complained of pain in the head and vertigo. The eyes twitched from side to side (*nystagmus*), and he said he could not see. The same symptoms recurred when the next ounce was thrown in, and ceased when the injection was suspended. The third repetition of the same quantity produced pain in the chest and dyspnœa, and no brain symptoms. His pulse seemed to be fuller after the operation, and he said he felt better. Death took place four days afterwards. A post-mortem examination showed that there were no clots in the veins of the arm or in the lungs. The brain was normal. I don't think the operation improved his condition, notwithstanding the fact that the patient himself and the house surgeon thought it did.”

Having decided to inject milk into the veins of my patient, a young and healthy cow was driven into the yard, a pitcher with gauze tied over its

top was placed in a bucket of warm water, the vein was exposed and the cow milked at the moment the fluid was needed. By means of the very perfect and safe transfusion apparatus of M. Colin of Paris, I slowly injected eight and a half ounces into the median basilic vein. The first effect which evidenced itself did so after about three ounces had been injected. Then the pulse became so rapid and weak that Dr. Mitchell, who kept it under his finger during the operation, could scarcely detect it. The patient declared that she felt as if her head would burst, and seemed greatly overcome. I went on slowly, however, transfusing the fluid until the amount mentioned had been reached; she was then left perfectly quiet.

In an hour from this time she had a decided rigor, the pulse was found beating between 150 and 160 to the minute, and the temperature rose to 104° . This high rate of temperature, however, soon passed off, and towards midnight the patient fell into a quiet sleep, from which she did not awake until morning.

I saw her about ten the next day, when Drs. Mitchell and Jones gave me a very encouraging account of her. As I entered her room she said in a feeble voice, "I feel that I am going to get well." This I was particularly glad to hear, as during the previous day she had given up all hope and was utterly despondent. The pulse was beating at 116 to the minute, the temperature was $99\frac{1}{4}^{\circ}$, the tendency to sweating had disappeared, and the facies had much improved.

During the day very small amounts of iced milk and lime-water were given by the mouth and retained. From this time onwards it would be needless to mark the daily changes which occurred. The patient steadily progressed to complete recovery, and on the twenty-first day after the operation, upon a visit made by Dr. Jones, she walked down stairs to meet him. The notes taken by him on this occasion declare that "the appetite is excellent, the patient growing stout, sleeping well, and gaining every day." Six weeks have now elapsed since the operation, and the patient is entirely well.

The general appearance of the tumours is as follows: The larger resembles closely in aspect a cirrhotic liver. It measures in its longer circumference 19 inches; in its shorter $16\frac{1}{2}$ inches; and weighs $4\frac{1}{2}$ pounds. The smaller tumour resembles a large fatty kidney; measures in its long circumference 12 inches; in its shorter $7\frac{1}{2}$ inches; and weighs $1\frac{1}{2}$ pounds.

Upon section a number of cysts were found in the larger tumour about the size of a chestnut, and filled with colloid material. In the smaller tumour no cysts appear except upon the circumference, where a few small ones, the largest about the size of a marble, exist.

Four gentlemen have examined these growths by the microscope, and as their reports differ somewhat I give them in their own words. They are presented in the order in which they were handed in.¹

Report of Dr. E. G. Janeway:—

"The microscopic examination of the tumour of ovary shows—

"1st. More, at the periphery, fibroid tissue with normal or some excess of cellular elements. In some spots I noticed an accumulation of lymphoid cells in this.

"2d. More central, sarcoma tissue, numbers of spindle cells arranged in

¹ These tumours are preserved in alcohol, and I shall be happy to forward sections of them to any microscopist who would like to examine them.

groups with but little intermediate tissue in parts. In some places the section had divided these transversely, giving the appearance of groups of round cells.

"3d. Rounded spaces lined by epithelium, mostly of polygonal character, in some approaching a little to the cylindrical.

"4th. Occasionally smooth muscular fibre cells.

"The name properly would be sarcoma. I think that in part these follicular spaces are of new formation, and that perhaps adeno-sarcoma would be a better name.

"Here and there I observed spaces from which a part of the fluid noticed on section escaped. These showed little spaces between the cells which assumed more of a stellate character."

Report of Dr F. H. Chapman:—

"The tumour is 'adenoid.'

"Thin sections of the alcohol-preserved preparation presented simply a dense fibrous tissue; but treatment by water, and afterwards by acetic acid, enabled me to obtain beautifully reticulated connective tissue, the meshes of which were filled with colloid globules, oil-globules, and granulations. No cells could be found; cells in the strict pathological sense, although the 'nuclei' and 'cells' of Spencer Wells were abundant.

"In order to verify the diagnosis, other methods were adopted. With caustic potash the connective tissue was dissolved, leaving as a residue the globules of different kinds which are not readily acted upon by this agent. Thin sections were also tinged with carmine and coloured in gold, the former of which methods produced fine specimens of connective tissue reticulation, and the latter, by colouring the globules and so-called cells, enabled me to judge more accurately of the proportion of globules to the tissue.

"Vessels were not numerous. The nerves were not studied, as for this portion of the structure fresh specimens are necessary."

Report of Dr. J. Adler:—

"The portion of tumour presented for examination appeared as a whitish, tolerably firm substance of apparently fibrous structure, and containing a number of small cysts of about the size of a pin's head. Most of these little cysts contained clear colloid matter. But very little material could be scraped away with a knife, and this consisted mainly of small epithelioid cells. These transparent sections examined under the microscope showed somewhat different structure in different localities of the tumour.

"One set of sections showed the following:—

"A stroma consisting of fibrous tissue mostly wavy, often denser and firmer, containing but few puriform or small round cells. In this stroma are imbedded follicles, evidently Graafian vesicles, with all peculiarities of structure with this exception, that in many the ovum cannot be detected, but the cavity is filled up by a mass of proliferating epithelial cells. We find further, follicular cysts retaining mostly the lining of short cylindrical epithelium and filled with colloid. And lastly, irregular epithelial masses of considerable size, involving usually a number of follicles from which they seem to originate; frequently these masses are strikingly similar to the 'epithelial-tubes' (Epithel-Schlänche) of Pflüger and Waldeyer. A second set of sections representing the main portion of the piece of tumour under examination showed the following: Fibrous tissue, mostly firm and dense, containing but few cells, arranged so as to interlace in various directions and form an extensive network. The bands of fibrous tissue are

sometimes very broad, sometimes but very thin and delicate. The meshes thus formed vary in size, being sometimes hardly perceptible between the masses of fibrous tissue, as a rule, however, tolerably large, and through a large tract of tumour nearly equal in size, thus presenting an appearance of great regularity. These spaces between the bands of fibrous tissue are filled up with epithelioid cells, showing a large nucleus and an irregular usually flat protoplasmatic body. The size of these cells varies somewhat, on the average they do not exceed the size of the epithelium of Graafian vesicles. These latter occur also in this set of sections usually filled up with epithelium.

"A third set of sections from but one or two spots of the piece under examination seem to consist, at first view, mainly of fibrous matter in which a higher power shows numbers of spindle-shaped cells arranged in bands, and here and there particles of large granulated round cells. Here, too, a closer examination detects, everywhere, filling up the interstices between the fibrous matter, epithelioid cells similar to those described above. Besides these three sets of sections a number of others can be obtained which exhibit combinations of all the structures described above. The tumour is moderately vascularized. Bloodvessels show no abnormalities.

"The first set of sections described ranges, as regards diagnosis, undoubtedly under the head of *Adenoma* in the sense used by modern authors and especially Klebs (*Handbuch der Patholog. Anatomie*, p. 796). Taking its origin from this adenomatous growth, the bulk of the tumour seems made up, as shown by second set of sections, of tissues moderately carcinomatous. This form of carcinoma, originating in adenoma of ovary, has often been described (Klebs, *loc. cit.* p. 809, as fibrous carcinoma; Virchow, *Die Krankhaften Geschwülste*, vol. ii. 370). A certain amount of sarcomatous tissue seems to enter into the composition of the tumour as shown by the last set of sections. The sarcomatous tissue has evidently developed from the fibrous stroma, and as, nearly always, in sarcoma of ovary, degenerates into carcinoma (sarcoma carcinomatosa, Virchow, *loc. cit.*), altogether the tumour may be classified as adenoma carcinomatosa."

Report of Dr. Francis Delafield:—

"Specimens were examined from both the large and small tumours. In both the structure is essentially the same.

"The tumours are conjoint in their structure. We can distinguish—

"1. Large rounded and tubular follicles lined with epithelium. Some of them are dilated so as to form cysts. They look like the follicles found in adenomata of the ovaries.

"2. Long rows of polygonal nucleated cells looking like true cancer.

"3. A reticulated arrangement of connective tissue, the spaces large and small. The small spaces containing cells, the larger colloid matter. These larger spaces do not resemble the dilated follicles spoken of under (1), although these also contain colloid matter. This stimulated tissue resembles exactly colloid cancer.

"4. The stroma in ordinary fibrillated connective tissue, in some places infiltrated with round cells.

"Classing the tumour according to its more important elements, I should call it a carcinoma, partly simple, partly colloid complicated by the growth of glandular follicles such as are seen in ordinary ovarian adenomata."

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